

ORDER FOR SUPPLIES OR SERVICES

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

BPA NO.

1. DATE OF ORDER SEP 04 2008		2. CONTRACT NO. (if any) NRC-42-07-482		6. SHIP TO:	
3. ORDER NO. 0020		MODIFICATION NO.		a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission	
4. REQUISITION/REFERENCE NO. 42-07-482TO20		NRO 08 239		b. STREET ADDRESS Attn: Robert Fretz 301-415-1980 Mail Stop: T6-C34	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Kala Shankar 301-415-6310 Mail Stop T-7-I-2 Washington, DC 20555				c. CITY Washington	e. ZIP CODE 20555
7. TO:				f. SHIP VIA	
a. NAME OF CONTRACTOR ENERGY RESEARCH INC				8. TYPE OF ORDER	
b. COMPANY NAME				<input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY	
c. STREET ADDRESS 6167 EXECUTIVE BLVD				REFERENCE YOUR Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.	
d. CITY ROCKVILLE		e. STATE MD	f. ZIP CODE 208523901	Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.	
9. ACCOUNTING AND APPROPRIATION DATA 825-15-171-111; Q4013; 252A; 31X0200 \$50,000 Contractor DUNS: 621211259				10. REQUISITIONING OFFICE NRO	
11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.O.B. POINT Destination	
<input checked="" type="checkbox"/> a. SMALL		<input type="checkbox"/> b. OTHER THAN SMALL		<input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED	
<input type="checkbox"/> d. WOMEN-OWNED		<input type="checkbox"/> e. HUBZone		<input type="checkbox"/> f. EMERGING SMALLBUSINESS	
13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	
a. INSPECTION		b. ACCEPTANCE		16. DISCOUNT TERMS NET 30	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Issuance of Task Order No. 20 under Contract No. NRC-42-07-482 Title: "River Bend SCOLA - Technical Assistance in support of COL reviews of BOP SRP systems" Period of Performance: 08/27/2008 - 02/26/2011 Estimated Reimbursable Cost: \$90,022.89 Fixed Fee: \$4,501.14 Total Cost Plus Fixed Fee: \$94,524.03 Funding in the amount of \$50,000 is being provided. See attached pages for a description of Task Order 20					

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages) 17(i) GRAND TOTAL
	21. MAIL INVOICE TO:						
	a. NAME U.S. Nuclear Regulatory Commission Payment Team, Mail Stop T-9-H-4						
	b. STREET ADDRESS (or P.O. Box) Attn: NRC-42-07-482, Task Order 20						
c. CITY Washington		d. STATE DC	e. ZIP CODE 20555				

22. UNITED STATES OF AMERICA BY (Signature)	23. NAME (Typed) Kala Shankar Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER
--	--

UNAUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITIONS NOT VALID
TEMPLATE - ADMCO

SUNSI REVIEW COMPLETE

OCT 22 2008

ADMCO

In accordance with Section G.4, Task Order Procedures, of Contract No. NRC-42-07-482, this definitizes Task Order No. 20. The effort shall be performed in accordance with the attached Statement of Work.

Task Order No. 20 shall be in effect from August 27, 2008 through February 26, 2011, with a cost ceiling of \$94524.03. The amount of \$90,022.89 represents the estimated reimbursable costs, and the amount of \$4,501.14 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$50,000, of which \$47,619.05 represents the estimated reimbursable costs, and the amount of \$2,380.95 represents the fixed fee.

The issuance of this task order does not amend any terms or conditions of the subject contract.

Your contacts during the course of this task order are:

Technical Matter: Karen Chapman
Project Officer
301-415-3653

Contractual Matters: Kala Shankar
Contract Specialist
301-415-6310

Acceptance of Task Order No. 20 should be made by having an official, authorized to bind your organization, execute three copies of this document in the space provided and return two copies to the Contract Specialist at the address identified in Block No. 5 of the OF 347. You should retain the third copy for your records.

ACCEPTANCE:


NAME

PRESIDENT
TITLE

08/27/2008
DATE

TASK ORDER STATEMENT OF WORK

JCN Q4013	Contractor ERI, Inc.	Task Order No. 20
Applicant Entergy	Design/Site ESBWR/River Bend	Docket No. Project No. 745
Title/Description River Bend SCOL - Technical Assistance in Support of Combined License (COL) Reviews of Balance of Plant (BOP) SRP Systems		
TAC Nos. RX0398	B&R Number 825-15-171-111	SRP Section(s) BOP SRP Sections (see Section 2)
NRC Task Order Project Officer (PO) Karen Chapman (301) 415-3653 Karen.Chapman@NRC.GOV		
NRC Technical Monitor (TM) Devender K. Reddy (301) 415-4026 Devender.Reddy@nrc.gov		

1.0 BACKGROUND

The purpose of this Task Order is to obtain the necessary technical assistance to support the NRC staff in determining whether or not the subject COL application meets appropriate regulatory requirements.

Standard design certification (DC) and combined license (COL) applications are submitted pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants." The U.S. Nuclear Regulatory Commission (NRC) reviews these requests based on information furnished by, DC and COL applicants pursuant to 10 CFR 52.79, "Contents of Applications Technical Information." The staff publishes the results of these reviews in a Safety Evaluation Report (SER).

The balance of plant (BOP) branch is responsible for performing systems-related safety evaluations of DC and COL applications for proposed new reactors. The branch reviews and evaluates the design and functional performance requirements of essential auxiliary support and balance of plant systems. This includes the review of various BOP fluid systems, protection against internal hazards (such as flooding, pipe breaks, and internally generated missiles), the design of new and spent fuel storage (including load handling systems), the turbine generator and the support systems for the emergency diesel generator. The branch also performs reviews of reactor coolant pressure boundary leakage detection, and is specified as a secondary review branch for radioactive waste systems (system design review only).

This task order is for assistance in support of the review of the River Bend, combined license application submitted by Entergy.

2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from ERI to assist the NRC staff in determining if the River Bend COL application meets appropriate regulatory requirements. The review will be conducted in accordance with 10CFR Part 52, and will be guided primarily by

NUREG-0800 "Standard Review Plans for the review of Safety Analysis Reports for Nuclear Power Plants LWR edition." ERI will provide assistance to the staff by developing letter reports that identify needed request for additional information (RAIs) and technical evaluation reports (TER) that provide technical input to the staff in the staff's development of the preliminary safety evaluation reports (SER), SER with open items, and SER with no open items.

The primary deliverable, or output of this regulatory review, shall be the TER. The TER will serve as input to the NRC staff's SER which will document the NRC's technical, safety, and legal basis for approving the COL application. The TER must provide sufficient information to adequately explain the NRC staff's rationale for why there is *reasonable assurance* that public health and safety is protected. The TER, and ultimately the SER, should be written in a manner whereby a person with a technical (non-nuclear) background and unfamiliar with the applicant's request could understand the basis for the staff's conclusions. The TER format is to be provided by NRC.

ERI shall utilize NUREG-0800 as necessary to conduct the safety reviews of the COL/DC applications for the Balance-of-Plant Branch (SBPA/SBPB) for some or all of the following SRP sections as specified for a particular application:

- 3.4.1 Internal Flood Protection for Onside Equipment Failures
- 3.6.1 Plant Design for Protection against Postulated Piping Failures in Fluid Systems
Outside Containment
- 9.3.1 Compressed Air System
- 9.3.3 Equipment and Floor Drainage System
- 3.5.1.1 Internally Generated Missiles (Outside Containment)
- 3.5.1.2 Internally Generated Missiles (Inside Containment)
- 3.5.1.4 Missiles Generated by Tornadoes and Extreme Winds
- 3.5.2 Structures, Systems, and Components to be Protected from Externally-Generated Missiles
- 5.2.5 Reactor Coolant Pressure Boundary Leakage Detection
- 9.1.2 New and Spent Fuel Storage
- 9.1.3 Spent Fuel Cooling and Cleanup System
- 9.1.4 Light Load Handling System (Related to Refueling)
- 9.1.5 Overhead Heavy Load Handling systems
- 9.2.1 Station Service Water System
- 9.2.2 Reactor Auxiliary Cooling Water System
- 9.2.5 Ultimate Heat Sink
- 9.2.4 Potable and Sanitary Water Systems
- 9.2.6 Condensate Storage Facilities
- 10.4.7 Condensate and Feedwater System
- 10.2 Turbine generator
- 10.3 Main Steam Supply System
- 10.4.1 Main Condensers
- 10.4.2 Main condenser Evacuation System
- 10.4.3 Turbine Gland Sealing System
- 10.4.4 Turbine Bypass System
- 10.4.5 Circulating Water System
- 9.5.4 Emergency Diesel Engine Fuel Oil Storage and Transfer System
- 9.5.5 Emergency Diesel Engine Cooling Water System
- 9.5.6 Emergency Diesel Engine Starting System
- 9.5.7 Emergency Diesel Engine Lubrication System

- 9.5.8 Emergency Diesel Engine Combustion Air Intake and Exhaust System
- 14.3.7 Applicable Groups of Plant systems – Inspections, Tests, Analyses, and Acceptance Criteria (Tier 1)

ERI will also review the applications for following SRP sections as the secondary review branch specified in the SRPs:

- 11.2 Liquid Waste Management System (only system design and performance)
- 11.3 Gaseous Waste Management System (only system design and performance)
- 11.4 Solid Waste Management System (only system design and performance)
- 14.2 Initial Plant Test Program for applicable balance-of-plant systems
- 16 Technical Specifications for applicable balance-of-plant systems

In addition, ERI will review BOP related generic issues including NRC Bulletins and Generic Letters, TMI action Items, Task Action Plan, New Generic Issues. ERI will also review BOP related Regulatory Treatment of Non-Safety Systems (RTNSS).

3.0 WORK REQUIREMENTS, SCHEDULE, AND DELIVERABLES

Subtask Description	Due Date Or Days	Deliverables
<p>1. REQUIREMENT: Participate in a kick-off meeting with the NRC staff to discuss the scope of the work, expectations and task order management for each application.</p> <p>STANDARD: Attendance by individuals designated by NRC.</p>	* 15 calendar days after authorization of work	N/A
<p>2. (Subtask 2 applies to ALL SRP Chapters listed in Section 2.0 of this task order.)</p> <p>REQUIREMENT: Support staff's acceptance review to identify major deficiencies in the application that might impact the review or affect the planned resource and schedule. The input will be provided in email/conference calls.</p>	* 15 calendar days from the receipt of the application from the NRC staff	EMAIL/Conference Call
<p>NOTE: Subtasks 3 through 6 will apply to SOME or ALL of the SRP Chapters listed in Section 2.0 of this task order. The actual review responsibilities and level of effort will be based on the review requirements of the COL application and will be determined during the acceptance review phase performed under Subtask 2. For the purposes of preparing a proposal and awarding this task order, the level of effort estimated in Section 8.0 is based on certain assumptions made by the NRC technical staff regarding the expected content of COL application. The NRC may modify the level of effort in Section 8.0, if necessary, to reflect actual technical review requirements for each SRP Chapter. See Section 10.0 of this task order statement of work for additional information about these assumptions.)</p>		

Subtask Description	Due Date Or Days	Deliverables
<p>3. REQUIREMENT (<i>Optional</i>): Review the COL application applicable sections (see Section 2) to determine the adequacy of the application. Determine if the methods and approach proposed by the applicant meet the appropriate review guidance. Identify issues and those aspects of the application that need additional or clarifying information. Prepare a Technical Evaluation Report (TER) providing</p> <ul style="list-style-type: none"> a. the draft Request for Additional Information (RAIs), and b. the draft preliminary safety evaluation report (PSER). 	* 90 calendar days from the receipt of the application	Technical Evaluation Report providing staff with RAIs and PSER
<p>4. REQUIREMENT (<i>Optional</i>): Review responses to the RAI questions to determine if they adequately resolve the outstanding issues. Prepare a TER providing the input to the SER with open items (SER/OI).</p>	* 20 calendar days after receipt of the RAI responses	Technical Evaluation Report providing the input to the SER with open items (SER/OI).
<p>5. REQUIREMENT (<i>Optional</i>): Review the applicant's response to the open items identified in the SER/OI. Identify any unresolved issues. Prepare a technical evaluation report (TER) providing the input to the final SER describing the resolution to the open items..</p>	* 20 calendar days after receipt the responses to the open items	Technical Evaluation Report (TER) providing the input to the final SER describing the resolution to the open items
<p>6. REQUIREMENT (<i>Optional</i>): As needed and requested by the staff, provide technical support to the staff during related ACRS meetings and hearing proceedings.</p>	TBD	TBD

* These Work Schedules are subject to change by the NRC Contracting Officer (CO) to support the needs of the NRC Licensing Program Plan.

The Technical Monitor may issue technical instruction from time to time throughout the duration of this task order. Technical instructions must be within the general statement of work delineated in the task order and shall not constitute new assignments of work or changes of such a nature as to justify an adjustment in cost or period of performance. The contractor shall refer to Section G.1 of the base contract for further information and guidance on any technical directions issued under this task order.

Any modifications to the scope of work, cost or period of performance of this task order must be issued by the CO and will be coordinated with the NRO Project Officer.

ERI shall provide the following information prior to initiation of a task order:

- A staffing plan that specifically reflects services to be provided

- A quality control plan which outlines the procedures and system that ERI will use for document version and configuration control, technical input tracking, change management, and technical and editorial reviews. ERI shall organize, track, and manage changes in a structured, systematic, and transparent manner, throughout the production of each task order deliverable.
- ERI shall also provide a statement of professional qualifications for staff proposed to work under this task order.

4.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

As specified in the basic task ordering agreement, ERI shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. The personnel specified to perform the reviews (engineers/scientists) shall possess experience in technical areas related to U.S. nuclear reactor design, construction, operation, maintenance, and inspection of nuclear power plants. Emphasis is placed on recent design evaluation experience that is related to safety where judgments are made as to whether applicable NRC codes and federal regulations are being, or have been, properly satisfied and/or implemented. Additional specific qualifications for these efforts include:

- Engineers/Scientists who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews addressing the adequacy of plant protection from internal hazards including, floods, pipe failures, and missiles.
- Engineers/Scientists who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews of balance of plant fluid systems including service water, component cooling water, compressed air, circulating water, ultimate heat sink and condensate storage.
- Engineers/Scientist who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews of balance of plant steam and power conversion systems including main steam, main condensers, turbine bypass, condensate and feedwater, and auxiliary feedwater systems.
- Engineers/Scientist who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews of spent fuel storage, cooling, and cleanup, and review of light and heavy load handling systems.
- Engineers/Scientist who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews of emergency diesel support systems including diesel fuel oil storage & transfer, diesel cooling water, diesel starting, diesel lubrication, diesel combustion air intake & exhaust systems.
- Engineers/Scientist who are cognizant of nuclear plant designs and are capable of performing detailed design and safety reviews of radioactive waste management systems and reactor coolant boundary leakage detection.

ERI shall provide a project manager (PM) to oversee the effort and ensure the timely submittal of quality deliverables so that all information is accurate and complete as defined in the base contract.

The NRC will rely on representations made by ERI concerning the qualifications of the personnel assigned to this task order, including assurance that all information contained in the technical and cost proposals, including resumes, is accurate and truthful. The resume for each professional proposed to work under this task order (principal investigators, technical staff, employees, consultants, specialists or subcontractors) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this task order is subject to the NRC technical monitor's (TM's) approval. This includes any proposed changes to key personnel during the life of the task order.

5.0 REPORTING REQUIREMENTS

Task Order Progress Report

The contractor shall provide a bi-weekly progress report summarizing accomplishments, expenditures, contractor staff hours expended, percent completed for each task under this task order, and any problems encountered by the contractor. The report shall be sent via e-mail to the NRC TM, Task Order Project Officer (PO) and CO.

Please refer to Section F of the basic contract award document for contract reporting requirements.

Technical reporting requirements

Unless otherwise specified above, the contractor shall provide all deliverables as draft products. The NRC TM will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the contractor. The contractor shall revise the draft deliverable based on the comments provided by the TM, and then deliver the final version of the deliverable. When mutually agreed upon between the contractor and the TM, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The contractor shall provide the following deliverables in hard copy and electronic formats. The electronic format shall be provided in MS Word or other word processing software approved by the TM. For each deliverable, the contractor shall provide one hard copy and electronic copy to both the PM and the TM. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: JCN No.: Q4013; Task Order 20; Technical Assignment Control No. (TAC): RX0398; the applicant: Entergy; and, the site: River Bend.

6.0 MEETINGS AND TRAVEL

The following travel assumptions should be considered in planning the work effort. It is likely that a smaller group than the entire review team will be necessary to accomplish some activities; the actual travel contingent will be determined by the NRC TM after discussion with

the contractor PM (and PTL). Travel in excess of the total number of person-trips must be approved by the NRC TAPM; travel within the work scope limits will be approved by the NRC TM.

- One-person, two-day working meeting to kickoff project
- One-person, two-day meetings, if needed, for hearing or ACRS meeting.

At the discretion of the NRC TM, quarterly progress meetings may be conducted at the contractor or via telephone or video conference

7.0 NRC FURNISHED MATERIAL

The NRC TM will provide those NRC documents related to the applicable portions of the application that are readily available. The NRC TM will provide access to the applicant's safety analysis report, pertinent sections of the COL, DC, or other NRC safety documents and docketed correspondence on related issues. The contractor staff will identify any additional NRC documentation that is needed and the TM will determine whether it will be provided by the NRC or obtained directly by the contractor, NUDOCS, ADAMS, NRC public document room or the NRC website at www.nrc.gov.

8.0 LEVEL OF EFFORT

The estimated level of effort in professional staff hours apportioned among the tasks and by labor category is as follows:

Task(s)	Labor Category	Level of Effort FY-08 (hours)	Level of Effort FY-09 (hours)	Level of Effort FY-10 (hours)
1	Project Manager	8		
2	Technical Reviewer, Subject Expert, Support	8	52	
3	Technical Reviewer, Subject Expert, Support		200	
4	Technical Reviewer, Subject Expert, Support		120	
5	Technical Reviewer, Subject Expert, Support		80	
6	Technical Reviewer, Subject Expert, Support			80

Task(s)	Labor Category	Level of Effort FY-08 (hours)	Level of Effort FY-09 (hours)	Level of Effort FY-10 (hours)
Tasks 1 - 6	Project Manager	4	88	10
Total	(650 Hours Total)	20	540	90

9.0 PERIOD OF PERFORMANCE

The projected period of performance is 30 months for each application from the application date.

10.0 OTHER APPLICABLE INFORMATION

License Fee Recovery

- All work under this task order is fee-recoverable under 10 CFR Part 170 and shall be charged to the appropriate TAC number.

Expected Classification or Sensitivity

- All work under this project is expected to be unclassified and not sensitive.

Assumptions and Understandings:

- The level of effort for Tasks 3, 4 and 5 is based on the assumption that on average 85 to 90% of the 35 systems that BOP has review responsibility for will be incorporate into the SCOL by reference and will not be reviewed by the contractor, and that the remaining 10-15% of systems (4-5) will require an average of 80 hours per system to review. It is also assumed that the contractor is familiar with the review procedures of SRP Sections.
- The level of effort in Task 6 is based on requiring one trip to NRC headquarters.
- It is assumed that the ERI will have access to the NRC furnished material available on the Internet.
- It is understood that the scope of the review consists of conference calls with the NRC staff, and with the NRC staff and the applicant, to discuss open items in an attempt to obtain additional information or reach resolution.

Attachments

Attachment 1: Outline, format, and sample for the TER (draft SER input)

Attachment 1
Outline, format, and sample for the TER (draft SER input)

X.Y.Z Title of Section

X.Y.Z.1 Regulatory Criteria

Develop an outline that follows the format and topics presented in the AREAS OF REVIEW section of the appropriate SRP section. This information will correspond to the SRP sections that are the subject of this Task Order. For each unique SRP review area contained in the TER, the contractor should specify the acceptance criteria that were used for its review. Summarize the applicable regulations and other regulatory references, including regulatory guides, generic letters, or NRC staff positions, that are relevant to this topic.

Technical reviewers are encouraged to use the descriptions of acceptance criteria from previously issued Safety Evaluation Reports for completed design certifications (e.g., NUREG-1793 for the AP1000 Final Safety Evaluation Report) when applicable.

X.Y.Z.2 Summary of Technical Information

Describe the key technical points that were made in the application. It is not necessary to restate the application verbatim or to address all the details in the application.

X.Y.Z.3 Technical Evaluation

Document the contractor's evaluation of the application against the relevant regulatory criteria. The evaluation should support the contractor's conclusions as to whether the regulations are met. State what the contractor did to evaluate the applicant's submittal. The contractor's evaluation may include verification that the applicant followed applicable regulatory guidance, performance of independent calculations, and validation that the appropriate assumptions were made. The contractor may state that certain information provided by the applicant was not considered essential to the contractor's review and was not reviewed by the contractor. While the contractor may summarize the information offered by the applicant in support of its application, the contractor should clearly articulate the bases for its conclusions.

Contractor should provide a clear and concise description of any request for additional information (RAIs). The description should include a justification of the requested information that the requested information is not provided in the application and is absolutely needed to determine or confirm whether the relevant regulatory requirements (articulate specific requirements) have been met. The contractor should discuss its technical evaluation of the licensee's response to the RAIs and determine whether it is acceptable. The contractor should clearly articulate the bases for its acceptance or rejection. If the RAI response is not acceptable, it will be classified as an 'open item'. All open items will be resolved in Phase 3.

X.Y.Z.4 Conclusions

Summarize the contractor's conclusions regarding the application, including words such as the following. As set forth above in Sections X.Y.Z.2 and X.Y.Z.3 of this report, [provide specific bases for conclusions that follow]. Accordingly, the staff concludes that the application meets [or, if applicable, does not meet] the relevant requirements of 10 CFR Part XX and is [or, if applicable, is not] acceptable.

X.Y.Z.5 References